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Heiko Urtel

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EXAMINER

NGUYEN, COLETTE B

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/588,948
Filing Date: August 10, 2006
Appellant(s): URTEL ET AL.

Georg M. Hasselmann
For Appellant

EXAMINER'S ANSWER

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This is in response to the appeal brief filed 11/30/2009 appealing from the Office action mailed 04/02/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed. However, a terminal disclaimer was filed on 01/15/2010.

(5) Summary of Claimed Subject Matter.

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be reviewed on Appeal.

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. A Terminal disclaimer filed on 01/15/2010 is not approved because of the following reasons:

An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

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The recorded assignee is not listed as on the Terminal Disclaimer.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

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various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

. **Claims 1-5 and 7-21** are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kitson (4,985,572) in views of Antons (5,731,479).

. Regarding claim 1. Kitson teaches a catalyzed hydrogenation of carboxylic acids and their anhydrides, saturated or unsaturated, mono, di or polybasic acids and their anhydride derivative of C₁₂ to C₁₂ to corresponding alcohols and/or esters in the presence of a catalyst of a composition comprising an alloy of at least one noble metal of group VIII and at least one metal capable of alloying with the aforesaid group VIII noble metal (Col 2 In 10-30), mainly, palladium (Pd), platinum (Pt), rhodium (Rh), ruthenium (Ru), osmium and iridium (Ir). And Metals capable of alloying with palladium including, silver, gold, copper, nickel rhodium, tin, cobalt, aluminum, manganese, gallium, iron, chromium and platinum. (Col2, In 40-50). Despite that he does specify that all the derivatives of the carboxylic (optical carboxylic included) can be used, optical carboxylic is not mentioned. Antons, on the other hand, as he discloses production process of optically active alcohols and ester with optically active carboxylic acid, he clearly mentions “*the problem of using ruthenium containing catalysts as the reduction demands relatively high temperatures and pressures which are not suitable because racemization and*

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degradation reactions take place" (Col1, ln 23-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the optically active alcohols and esters of Anton with the teachings of Kitson of a catalyst of an alloy of noble metal of group VIII especially with Pt, Pl, Rh and Ir and avoid using Ruthenium (as mentioned by Antons and as shown in all the catalysts made in tables 1-8 and Fig 1-4 and col 6, ln 54-65 of Kitson where no ruthenium is used) to produce optical active alcohols and esters to be used in cosmetics and pharmaceuticals where the demands and profits are high. As for the claim of stereo-center in the α or β position, both Kitson and Anton products exhibit these stereo-center, (Kitson, col6, ln38). The subject matter as a whole would be obvious for an ordinary skill in the art at the time of the invention to claim the process of Kitson to produce the optically active alcohols from the corresponding optical carboxylic acids as taught by Antons as both use carboxylic acids as starting materials .

Regarding claim 2. As regards the catalyst composition, Kitson teaches the noble metals selected from the group VIII of the periodic table which comprises palladium (Pd), platinum (Pt), iridium(Ir), rhodium(Rh). (Col 2, ln40-43).The same components as claimed.

Regarding claims 3, 4 and 15, 16 . Kitson also teaches another element of the catalyst to comprise rhenium, tungsten or molybdenum. Kitson discloses tin (Sn) as one of the metal that can be alloy with noble metals to form the catalysts. It would have been obvious for one of ordinary skill in the art at the time of the invention to optimize the

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composition of the catalysts with different combination of metals as listed by Kitson and tin would be a preferred choice as it is non corrosive as Platinum.

Regarding claims 5, 17 and 21. Platinum (Pt) and Tin (Sn) are among the catalyst composition that Kitson teaches specifically as components of the alloy catalysts.(Col. 2)

Regarding claim 7. Kitson teaches hydrogenation process of some examples products such as gamma butyrolactone, tetrahydrofuran, etc...Among the products of the instant claims.

. Regarding claim 8. Kitson also teaches a supported catalyst. (col. 2, line 62)

Regarding claim 9. Kitson teaches a composition of 0.1 to 20% by weight as noble metal, compared to 0.01 to 30% as claimed, and from 1-10% by weight of component (B), comparing to 0.01-50% as claimed. The percent weight of the catalyst overlaps therefore anticipated.

Regarding claims 10 and 19. Kitson teaches suitable supports including high surface area graphitized (HSAG) carbons, graphites, carbons, silicas/aluminas. Same support materials as claimed, therefore anticipated.

Regarding claim 11. Antons teaches alcohols as reducing agent (Col.2, line 60).Kitson teaches any suitable solvent included water (Col5, ln 1-5)

Regarding claim 12. Antons teaches a pressure range of 50-220 bars. vs. 100-300 bar as claimed (Col.2 line 66).

Regarding claim 13. Antons teaches a temperature range of 50-150C vs. 30-180C as claimed. (Col.2, line 66).

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Regarding claim 14 and 20. Kitson teaches a requirement to introduce an acidic function into the catalyst to promote “in situ” hydrogenation results. (col.6, line 20).

Regarding claim 18. See discussion of claim 1.

(10) Response to Argument.

A. Appellant argues that the nonstatutory obviousness-type double patenting rejection has been overcome by the filing of a terminal disclaimer.

A Terminal disclaimer filed on January 15, 2010 is not approved because of the following reasons:

An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

The recorded assignee is not listed as on the Terminal Disclaimer.

B. Appellant argues that Antons teaches away from the proposed combination of references.:

The invention on appeal claims a process of making optically active alcohols or carboxylic acids having 3 to 25 C or their acid derivatives by hydrogenating the corresponding (i.e. optically active) mono- or di-carboxylic acid or acid derivative thereof in the presence of an alloy catalysts comprising a noble metal consisting of Pt, Pd Rh, Ir, Ag and Au and at least one further element consisting of (Sn, Ge, Mo, W, Ti,

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Zr, V, Mn, Fe, Co, Ni, Cu, Zn, Ga, In, Pb, Bi, Cr, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

The process as claimed is rejected as obvious over 35 U.S.C. 103(a) over Kitson (572) in view of Antons (479) for the following reasons:

The hydrogenation of carboxylic acids to produce the corresponding alcohol is well known in the art. Kitson (572) teaches an improved hydrogenation process of carboxylic acids to make the corresponding alcohols to minimize racemix and unwanted by-products by using as catalyst an alloy catalyst comprising a noble metal of group VIII and at least one metal capable of alloying the noble metal such as: Sn (tin), Co (Cobalt), Mn (Manganese), Ga (Gallium), Cr (Chromium), Cu (Copper), Fe (Iron), Ge (Germanium). (Col2, line 8-66). The process temperature is from 50-300C with a pressure range of 1 to 300 bar (Col 7, line 10-12) Kitson is silent and does not discuss "optically active" carboxylic acids as starting materials nor the optically active final products, ie alcohols and carboxylic acids. However, the carboxylic acids and alcohols of Kitson do not exclude or prohibit the optically active carboxylic acids and the alcohols. Antons (479) teaches a process of making optically active alcohols by reducing optically active carboxylic acids with hydrogen at temperature below 160C and pressures below 250 bar. The subject matter as a whole would be obvious to an ordinary skill in the art at the time of the invention as one of ordinary skill would have been motivated to use the alloy catalysts of Kitsons to also make optically active alcohols from optically active carboxylic acids as taught by Antons as both teach a process of making alcohols from the corresponding carboxylic acids and the alloy

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catalysts will minimize the racemix and by products and the low temperature is a bonus as it is economical and safer process.

C. Appellant argues that the experimental data submitted in the Remarks filed 1/15/2009 shows unexpected results of use of Pt/Sn over Ru.

As I point out above, the primary ref Kitson teaches to use of such an alloy, ie a noble metal with a metal capable of alloying such as tin in Column 2, line 46. Furthermore, the unexpected result was not presented via Declaration or Affidavit but only as part of Remarks submitted in response to an office action.

As for other arguments, they are not commensurate to the claims, especially the Appellant argues that the preferred embodiment is Pr/Sn in the arguments dated 10/16/09 on page 5 and the appeal brief dated 11/30/2009 on page 10 when the claim is limited to **Pt/Sn** of which Kitson already discloses as an alloy catalyst comprising of a noble metal with at least a metal such as tin.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/COLETTE NGUYEN/

Examiner, Art Unit 1793

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Conferees:

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793

/Anthony McFarlane/